South Texas Weather Journal

Fall / Winter 2004

Serving the Coastal Bend, Rio Grande Plains, and Victoria Crossroads

IN THIS ISSUE

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Volume 1, Issue 3

Coastal Flooding Along Texas Beaches

Astronomically high tides occur along the Texas coastline every year in the month of October. During this month, predicted tides can reach or exceed 2 feet mean sea level (MSL). At this level most beaches along our barrier islands become flooded with water reaching the dunes during high tide. The weather can also play a role in raising our tide levels well above the predicted values. How does the weather influence our tides? Strong winds blowing from the east across the Gulf of Mexico pushes water up along the Texas coast.

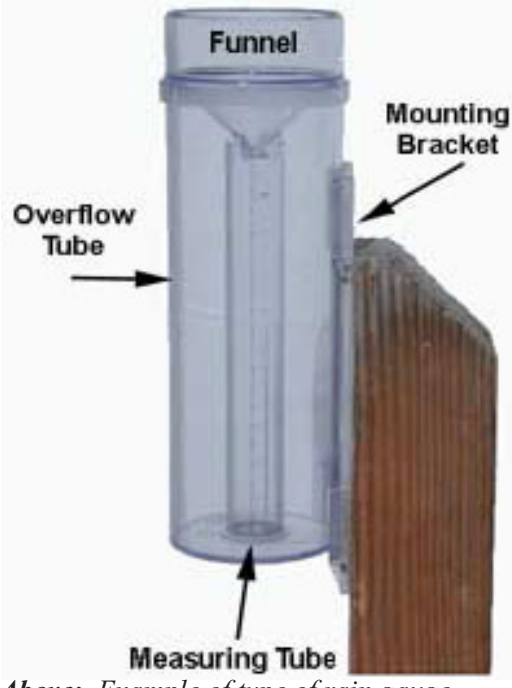
Road covered by water during a coastal flooding event. Vehicles can easily become stranded when conditions like this occur.

This occurs when high pressure settles south from Canada and interacts with low pressure in the Gulf of Mexico. The clockwise circulation around the high combined with the counter clockwise circulation around the low causes this broad east wind to develop.

When high tide levels are observed along the barrier islands, it usually takes several days before tide levels rise in the bays and inland waterways. When the tides begin to threaten life and property, the NWS will issue a Coastal Flood Warning. If a Coastal Flood Warning is issued, take precautions to protect your life and property. Do not drive your vehicle into the flood waters because you may become stranded and drown.

Rainfall Network Update

The National Weather Service is currently embarking on a project to install 150 volunteer rain gauge sites across South Texas in the coming year. We have installed 23 of these sites in the past few months and the data has been extremely helpful. Rainfall observers check their gauges around 8am every morning. If there has been rain, they submit their 24 hour total on our web site and they're done. Observers are given a new gauge that holds 11 inches of rain and is accurate to one hundredth of an inch. These gauges must be installed in an unobstructed location at least 15 feet from a house, tree, or overhang. A NWS representative assists with the installation and measures the exact location of every gauge with a GPS unit so rainfall amounts can be plotted on a map. In the past few months, hundreds of reports have been received. This data is used to validate the radar estimation algorithms of the NEXRAD Doppler radar, and assist the River Forecast Center in Fort Worth to better predict river levels on South Texas rivers. We greatly appreciate all the help from our volunteers. Your efforts will help us fulfill our mission of protecting life and property of the citizens in South Texas.



Above: *Example of type of rain gauge being installed in these locations.*

Season of Devastating Hurricanes

2004 RAINFALL TOTALS

Rainfall Amounts Jan - Sep 2004

Corpus Christi
32.41”

Normal
24.82”

Departure
+ 7.59”

Victoria
49.80”

Normal
30.73”

Departure
+ 19.07”

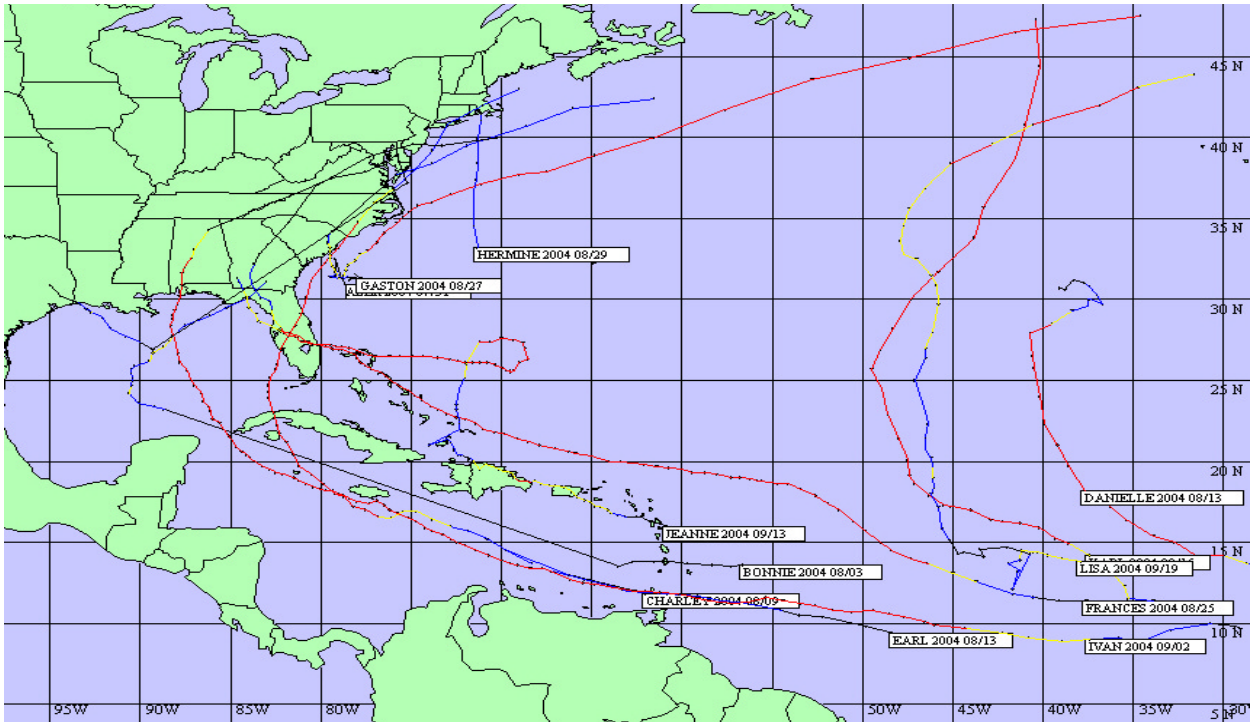
Laredo
24.69”

Normal
16.83”

Departure
+ 7.86”

The 2004 Atlantic hurricane season will go down as a memorable one, particularly for residents of Florida. It was not until August 1st that the first tropical storm formed, giving the 2004 season the fifth latest start on record. However NOAA forecasts before the season began, of 12 to 15 named storms, appears to have been right on target as storms picked up during the months of August and September. As of this writing the Atlantic Basin has seen 14 named storms in 2004. But the 2004 season will be remembered for four hurricanes and one tropical storm that struck Florida during the course of seven weeks in August and September. The 2004 season marked the first time that four hurricanes struck one state in the same year since Texas in 1886.

On the afternoon of Friday, August 13th Hurricane Charley made landfall as a category four hurricane on the southwest coast of Florida, near Charlotte Harbor and produced devastating damage, particularly around Punta Gorda, and several fatalities as it crossed Florida and into the Atlantic. Charley again made landfall near Myrtle Beach, South Carolina on the 14th, as a weaker category one hurricane. Preliminary damage estimates stand at $15 billion. During the early morning hours of September 5th Hurricane Frances made landfall as a category two hurricane along the east coast of Florida, marking the first time that two hurricanes had struck the same state in the same year since 1995.



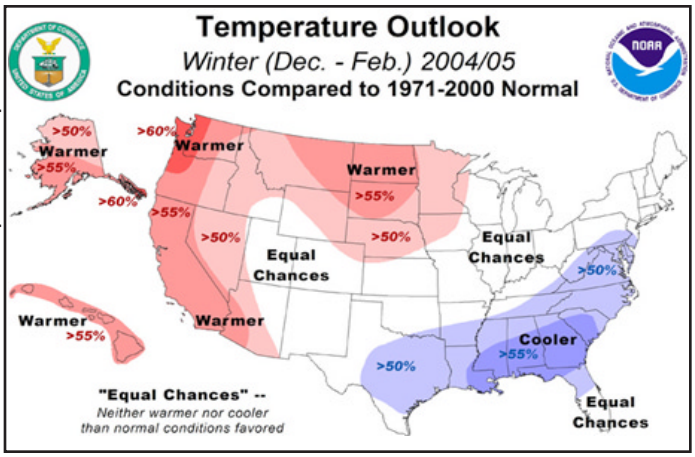
Above: *Map showing the tracks of all named tropical systems so far this year. Note the cluster of landfalls in Florida.*

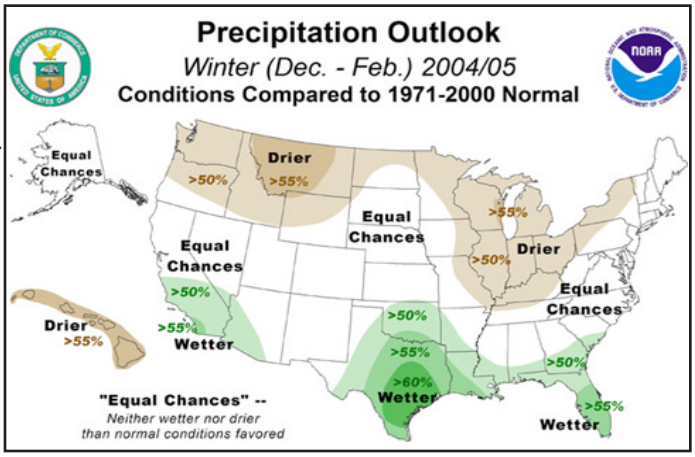
The strongest, and arguably the most unusual of them all, was Hurricane Ivan. Ivan had devastating effects through the Antilles, destroying close to 90% of homes on Grenada. As Ivan moved west, it strengthened into a category 5 hurricane. On September 11th Ivan became the 6th most intense hurricane on record when a minimum central pressure of 910 mb and 165 mph winds were recorded. Ivan became the longest lasting intense (cat 3-5) hurricane since 1900, with 10 intense hurricane days. Ivan weakened to a category 3 hurricane, as it made landfall on September 16th, pounding Gulf Shores, Alabama and Pensacola, Florida. Ivan’s effects were felt far inland, with flooding, damaging tornadoes and hurricane force winds well inland into Alabama, Tennessee and Georgia. The remnant circulation of Ivan made a loop through the Atlantic, across Florida and into the Gulf, were it was renamed Tropical Storm Ivan on September 22nd. Ivan eventually made landfall again as a tropical storm near Cameron,

(Concluded on the bottom of Page 4)

Colder / Wetter Winter for South Texas

The National Weather Service's Climate Prediction Center produces long term forecasts of temperature and rainfall for the continental United States. The Winter Outlook (Dec-Feb) for South Texas calls for below normal temperatures and above normal rainfall. The cooler and wetter conditions forecasted for South Texas reflect a number of climate conditions, including a weak to moderate El-Niño that is expected to persist into early 2005 across the central equatorial Pacific. Normal high temperatures in January range from the lower 60s in Victoria to the upper 60s in Laredo. Lows average in the low to mid 40s across South Texas in January. Normal precipitation from December through January in Victoria, Corpus Christi and Laredo is 6.95 inches, 5.21 inches and 2.55 inches respectively.





Right: *Temperature and Precipitation Outlooks for the United States for December through February.*

INTERESTING WEATHER FACTS

All Time Coldest Temperatures

Corpus Christi

11° F

Feb 12, 1899

Victoria

9° F

Feb 18, 1930

Laredo

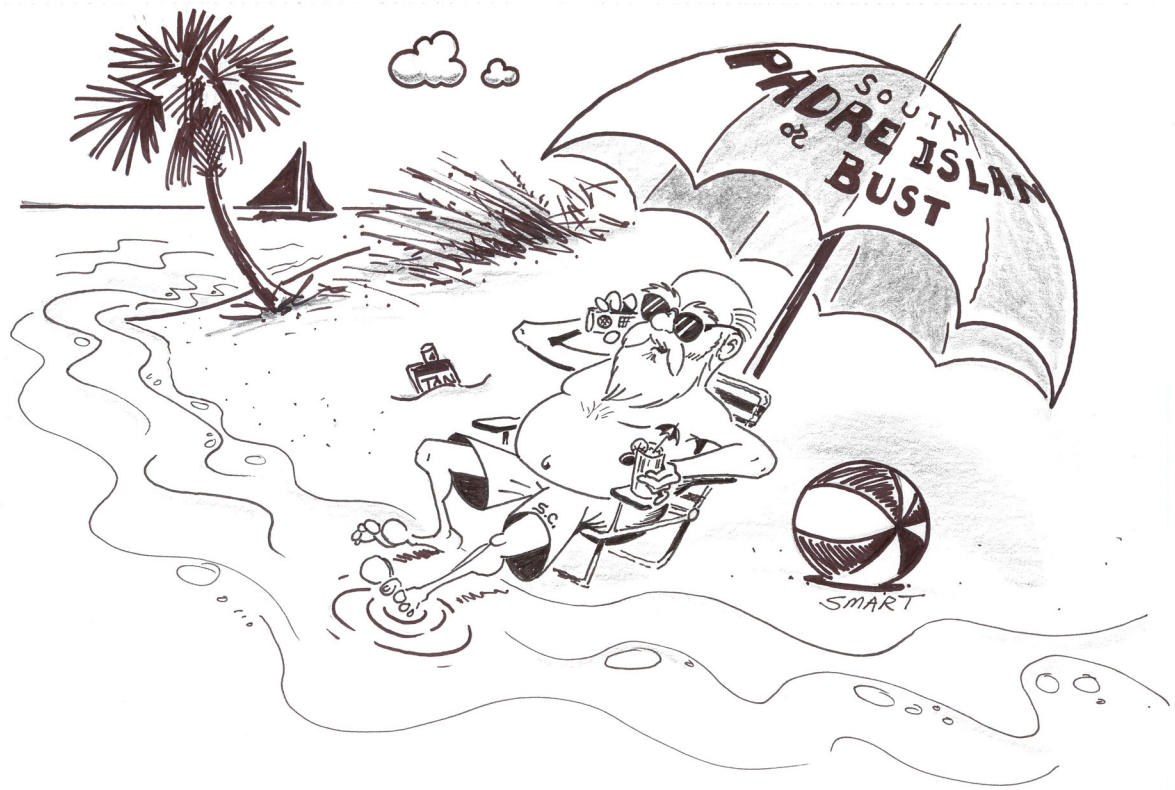
5° F

Feb 12, 1899

Winter is officially from December 21 through March 20

WEATHER NUTZ

by Steve Smart



"HELLO...NATIONAL WEATHER SERVICE? THIS IS SANTA... LET IT SNOW, LET IT SNOW, LET IT SNOW!"

Snowfall in South Texas This Winter?

It's not likely. In the last 124 years, Corpus Christi has recorded 14 measurable snowfall events. Strikingly, 12 of those events occurred during moderate to strong El-Niño years. The other two events occurred during strong La-Niña years. Before 1959, you could bet the farm, that if there was a moderate to strong El-Niño year, we would get measurable snow. It occurred every time. However since 1959, we've recorded eight moderate to strong El-Niño events, but only once (1973) did we receive measurable snowfall. What has happened? Examining our temperature and precipitation data more closely, illustrates that our climate has warmed significantly during this period. The average annual temperature in Corpus Christi has warmed from 76° F in 1920's to 81° F present day. Since the atmosphere is warmer, it can now hold more water, thus our annual rainfall has gone up too, rising from 25 inches per year in 1920's to 32 inches per year today. Thus, based on recent trends, the odds of Corpus Christi receiving measurable snowfall this winter are slightly better than 10%, and that's only if the waters in the equatorial Pacific warm to moderate El-Niño levels.

WINTER WEATHER - DID YOU KNOW?

Did you know that the earliest freeze in Corpus Christi occurred on October 31, 1993. The latest freeze in Corpus Christi occurred on March 31, 1987. The earliest freeze in Victoria occurred on October 31, 1993. The latest freeze in Victoria occurred on March 31, 1937.

Are you familiar with the Winter Weather Products that your local National Weather Service Office issues?

*A **FREEZE WARNING** is issued when:*
Temperatures are expected to drop to 32° F or lower for 2 or more hours.

*A **WINTER WEATHER ADVISORY:***
Less than or equal to 3" of snow.
Less than 1/4" of ice.
Less than 1/2" of sleet.

*A **WINTER STORM WARNING:***
Greater than 3" of snow in 12 hrs.
Greater than 6" of snow (storm).
Greater than 1/4" of ice.
Greater than 1/2" of sleet.

WIND CHILL CHART

Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

Wind Chill (°F) = 35.74 + 0.6215T - 35.75($V^{0.16}$) + 0.4275T($V^{0.16}$)

Where, T= Air Temperature (°F) V= Wind Speed (mph) *Effective 11/01/01*

Season of Devastating Hurricanes - Continued

Louisiana. Ivan is responsible for at least 70 deaths throughout the Caribbean and 50 in the United States.

Tropical Storm Jeanne crossed Puerto Rico, and became a Hurricane near the Dominican Republic. Jeanne produced devastating floods over the Dominican Republic, tragically resulting in over 1500 deaths. Jeanne made landfall as a category 3 along the east coast of Florida on September 25th, near where Frances had made landfall just 20 days earlier.

IN OUR NEXT ISSUE

The South Texas Weather Journal is produced by the staff at the Corpus Christi NWS Office and will be published three times a year: spring, summer, and fall/winter seasons

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